The Soviet-made D-30 122mm towed howitzer was being cut into scrap metal when it exploded.

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When War Trophies Become Garrison Killers

By SSgt. Rodney Smith

The captured Iraqi howitzers adorned the regiment's lawn and command post. They symbolized the blood, sweat and tears shed in the unit's victory in southwest Asia a decade ago. Last year, the regiment was ordered to move their command post 30 miles north to another camp. The regimental commander decided not to take the war trophies. Instead, he ordered them to be disposed of.

To do so, his regiment would have to demilitarize the howitzers. This meant they would need to dismantle and alter the guns to prevent them from being used as weapons again.

They decided to dismantle the howitzers by cutting them into pieces with a torch. The plan called for two welders, a staff sergeant and a lance corporal. Also, a master sergeant and another SNCO from the ordnance-maintenance company would be present to ensure the howitzers were free of nitrogen gas and hydraulic oil before cutting.

With the plan set, the staff sergeant went to work on the first howitzer (152mm). The first step was to de-pressurize the weapon. He found several hydraulic lines and cut them, which released the built-up fluid pressure. By the end of the day, the Marine had minced the gun.

The next day, the staff sergeant began work on the second howitzer. This one was different; it was a 122mm. Again, though, his first step was to de-pressurize the weapon. He looked for hydraulic lines but

couldn't find any, so he assumed there was no fluid pressure and decided to begin work. He started with the barrel. For better access, he lowered it until it was parallel to the ground.

After cutting the barrel, wheel assembly and the three trail-legs, the staff sergeant began cutting the mounting brackets. Soon, his lance corporal asked to do the job, so the staff sergeant handed him the torch. The lance corporal had cut away the bottom portion of the equilibrator's mounting bracket and was almost finished cutting the upper portion of the bracket when the weapon exploded. A fireball erupted, and metal was hurled into the air and at the welder. He was killed instantly when a metal piece hit him in the head. Why did this happen?

Investigators concluded the following: The lance corporal was cutting the equilibrator's mounting bracket when it sheared from the recoil-recuperator mechanism. The bracket was under tension as it held the equilibrator in compression. By cutting away at the bracket, he weakened it enough to shear.

Spring-loaded and gas pressurized, the equilibrator helps the operator elevate the barrel. When the staff sergeant lowered the barrel for better access, he

You can see where the Marine was cutting when the bracket sheared.

The heavy sleeve violently ejected into the Marine's face.

The shattered welders mask.

The intact howitzer shows where the pieces came from.

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compressed the spring and increased the pressure of the fluid inside the equilibrator. None of the Marines at the site knew it, though.

When the bracket sheared, the equilibrator's outer sleeve and spring ejected toward the lance corporal. The outer sleeve struck him in the face. The spring flew over a nearby building and landed 600 feet beyond it.

To prepare for the operation, the regiment used the most qualified Marines available for the job: welders and a towed artillery-systems technician. While gathering information, they found excerpts from the *Defense Demilitarization Manual*[1]. This reference describes how to de-energize an M105's equilibrator by cutting it lengthwise—deep enough to cut through two coils of the spring located inside. This information would have been useful, but it wasn't in the excerpts they found.

Demilitarizing the howitzers was a complicated task for the Marines involved because they were navigating the unknown. None of them had the experience or enough information to do the job correctly.

An ordnance-maintenance company within each force service-support group is the only unit in the operating forces authorized to demilitarize U.S.-made small arms and some small foreign weapons. In the event you're involved in such an operation, here are some things you should do:

1. First and foremost, use operational risk management (ORM). (see sidebar)

2. Get as much information as possible. There are no manuals telling how to demilitarize foreign weapons. *The Defense Demilitarization Manual*[1] contains demilitarization instructions only for U.S. weapons, but it can be useful in demilitarizing foreign weapons. There are some similarities in design. It's also helpful to use translated foreign-weapons manuals, which can be obtained from the Marine Corps Intelligence Agency and the National Ground Intelligence Center[2].

3. Gather people who have experience and knowledge of the weapon system. If you have someone who knows the weapon's characteristics and functions, you'll be better able to identify hazards and control the risks.

4. Treat every weapon as if it were loaded. Sound familiar? In this case, be aware that some weapon systems are under pressure and may contain combustible or radioactive matter like tritium or depleted uranium.

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[1]Defense Demilitarization Manual 4160.21-M-1 Can be found at http://web7.whs.osd.mil/dodiss/publications/pub2.htm

[2]National Ground Intelligence Center in Charlottesville, Va.

ORM: A Great Tool for Demilitarization

This tragedy illustrates the dangers of doing a job when you don't have the right knowledge or experience. Whenever you're doing a task for the first time, or under different conditions, and you're unsure about the risks, remember one thing: Use ORM—it's your best tool.

ORM is a five-step process that helps you make an informed decision about the risks before you take them. If the risks outweigh the benefits, wait until you can find the right people, knowledge or equipment to reduce the risks to an acceptable level before starting the job. To learn more about ORM, ask your unit safety officer, or log onto our web site, www.safetycenter.navy.mil.